



THE LANGLEY DAAC newsletter

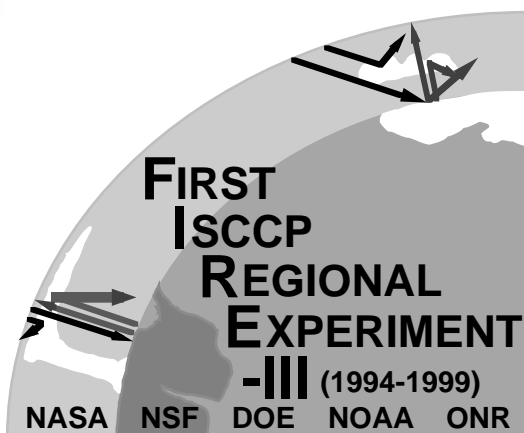
FIRE III

Arctic

Cloud

Experiment

(ACE)



FIRE III

The Arctic Cloud Experiment (ACE) Intensive Field Campaigns to begin

FIRE, the First ISCCP (International Satellite Cloud Climatology Project) Regional Experiment, has conducted four successful field missions in support of a program of research that includes remote sensing and modeling studies of clouds and radiation as they relate to climate. The field programs included cirrus studies in Wisconsin and Kansas, a stratocumulus study off the coast of California, and a stratocumulus transition experiment in the subtropical north Atlantic.

FIRE is now going to the Arctic to study a variety of Arctic cloud systems under spring and summer conditions. At the same time, analysis of previously collected FIRE data will continue. The FIRE III Arctic Cloud Experiment (ACE) will consist of a two phase campaign, starting in April, 1998, and a second phase to be conducted during July, 1998.

The scientific objectives of ACE will be to document, understand, and predict the Arctic cloud-radiation feedbacks, including changes in cloud fraction and vertical distribution, water vapor

cloud content, cloud particle concentration and size, and cloud phase as atmospheric temperature and chemical composition change. ACE will focus on improving current climate model simulations of the Arctic climate, especially with respect to clouds and their effects on the surface energy budget. In addition, ACE will address a number of scientific questions dealing with radiation, cloud microphysics, and atmospheric chemistry.

The strategy of ACE is to use aircraft to take *in situ* and remote measurements of the Arctic cloud and surface characteristics. The aircraft observations will be supplemented by surface measurements provided by SHEBA (Surface Heat Budget of the Arctic Ocean) and ARM (Atmospheric Radiation Measurements). SHEBA, which is primarily sponsored by the National Science Foundation and the Office of Naval Research, is a research program designed to document and understand the physical processes that couple the atmosphere, ice, and ocean in the Arctic. The ARM Program is part of the Department of Energy's effort to resolve scientific uncertainties about global climate change with a specific focus on improving the performance of general circulation models used for climate research and prediction.

The Arctic Cloud Experiment, in collaboration with SHEBA and ARM, represents an important broadening of the scientific scope and the experiences of the FIRE program as a whole. This strategic step is motivated by the acknowledged importance of the Arctic for the global climate system, and an appreciation of how poorly we understand Arctic clouds and the energy budget of the Arctic surface. At the same time, the ACE phase of FIRE is quite consistent in approach with the earlier successful phases of FIRE's "boundary-layer cloud" projects. The emphasis will be on aircraft measurements, with surface data being provided primarily by SHEBA and ARM.

The Langley DAAC will provide a web site to report experiment status in real time during the campaign, and the DAAC will provide a centralized data holding and on-line system to facilitate easy access to all the FIRE data.

Detailed information on the FIRE Projects can be found on the FIRE Home Page at:

<http://asd-www.larc.nasa.gov/fire/>

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ECS**Version 2****Installed**
•**CERES****Data****Validation****Progress**
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ECS Version 2 Installed

The first delivery of EOSDIS Core System (ECS) Version 2 (V2) Drop 3.02 software was installed and tested during February by a combined team of ECS contractor and DAAC personnel. ECS V2 will be used to support mission requirements for MISR and MOPITT on EOS AM-1 and SAGE III on Meteor-3M(1). Although the DAAC received two prior ECS deliveries to perform preliminary Science Software Integration and Test (SSI&T) activities, V2 represents the first system designed to support end-to-end operations.

Primary responsibility for the installation of the ECS custom software was assigned by the Earth Science Data and Information System (ESDIS) to Raytheon personnel from Landover, MD. DAAC personnel from the local Raytheon Sustaining Engineering Organization and the CSC Maintenance and Operations staff assisted as much as possible in the installation and test and provided frequent systems administration and database administration support. Some difficulties were encountered in the installation process when required files were not made available in a timely fashion to the DAAC from Landover. As problems with the installation or with documentation were encountered, entries were made in the ECS Non-Conformance Reporting (NCR) system in Landover. The ECS NCRs are reviewed daily by ESDIS, DAACs, and Raytheon to determine priorities for addressing system problems.

Following the installation and checkout of the various custom software subsystems, DAAC personnel from every functional area participated in the first phase of ECS testing. Local staff members were "in the driver's seat" to perform tests using procedures written by Raytheon to exercise basic system functions needed to perform AM-1 launch critical tasks. Because the installation process took longer than planned, the time allocated for testing was compressed and many of the tests were performed concurrently. Following the completion of the tests, several DAAC testers expressed concern over the quality of the testing phase. Therefore, many of the tests will be repeated as soon as possible using the updated test procedures. In addition, numerous problems were encountered after a shut down of all ECS systems for a facility power outage. Considerable care was taken by the local DAAC staff to record missing system startup information and to resolve server availability problems.

ECS Version 2, Drop 4.05 was installed in early April. With this version, the local DAAC staff assumed the main responsibility for the installation of the ECS custom software on the primary and secondary servers. The experience gathered in the earlier release was instrumental in the timely completion of the checkout and site specific tests following the installation. DAAC staff will also repeat many of the tests

performed for the previous version using updated test procedures. These tests have been integrated into various launch critical operational scenarios to validate the required functionality to support EOS-AM1.

The current ECS version supports additional production rules for producing MISR science products, and near term SSI&T activities at the DAAC aim to demonstrate these capabilities with an expanded team of DAAC staff and on-site MISR team members.

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CERES Data Validation Progress

The TRMM spacecraft launched from Japan on November 27, 1997, carried the first CERES instrument into orbit with the rest of the TRMM payload. The CERES team at LaRC was able to process data from the instrument within a day after launch, although observations of the Earth did not begin until December 27, when the contamination covers were opened and the instrument was commanded to begin scanning. On January 17, 1998, the first observations of deep space were obtained as the TRMM spacecraft pitched over. In all of these operations, all of the TRMM instruments and the TRMM spacecraft performed as they were designed to perform.

During the time since starting the observation of the Earth with the CERES instruments, the CERES team has been checking that the calibration established on the ground has been preserved into space. The team has also checked that the data can be located on the Earth well. Both of these objectives have been fully accomplished. The CERES team is currently producing monthly averages of ERBE-like data products to see how the CERES data compares with what they observed more than a decade ago. While these checks have not been completed, the team expects to have useful information on the comparison between CERES and ERBE in time for the CERES Science Team meeting on April 21-23.

Of particular interest will be the comments from the science team regarding the ERBE-like data products. These products should give the first indication as to how the cloud forcing has changed in the time since ERBE. Work will continue on validating the other CERES data products, particularly the cloud properties that will be obtained from the Visible Infrared Scanner (VIRS) instrument data. The Science Team looks forward to the launch of the EOS AM-1 spacecraft, when construction of new, and much more accurate ties between the cloud properties and the Earth's radiation budget will be made.

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New Data

Available

Radiation

Budget

Trading

Cards

New Data Available

The ARM Enhanced Shortwave Experiment (ARESE) was conducted in the Fall of 1995 over the central U.S. The MODIS Airborne Simulator (MAS) data are now available.

FIRE Extended Time Observation (ETO) Polarization Diversity LIDAR (PDL) data are a limited area measurement for use in the ISCCP and GCM validation efforts. The data consist of LIDAR relative backscatter measurements and are available for the period 3/12/1992 through 9/8/1997.

SAGE II Aerosol, Ozone, and Nitrogen Dioxide Profile data in HDF have been reprocessed and contain the updated mirror calibration data. These data are also available in ASCII and native binary formats.

New NASA Water Vapor Project (NVAP) data sets with SSM/I data from the Colorado State University STC-METSAT are now available which cover January 1993 through December 1995. These data are available on 4mm and 8mm tape and via ftp.

New Data Available from the DAAC:

Data Set Name	No. of granules	Volume (MB)
ARESE_ER2_MAS	388	11467.73
FIRE_CI2_ER2_LIDAR	7	3288.92
FIRE_ETO_UTAH_PDL	510	25.71
SAGE2_AERO_PR_F_ASC	160	2433.76
SAGE2_NO2_PR_F_ASC	160	495.05
SAGE2_O3_PR_F_ASC	160	1047.86

Accessing Data:

The Langley DAAC provides multiple interfaces to access its data holdings. The graphical and character user interfaces allow users to search and order data. The web interfaces allow direct access to some data holdings for immediate downloading or placing media orders, for searching the data holdings and downloading electronically available holdings, and for ordering prepackaged CD-ROMs and videocassettes. All of these methods are easily accessible from the Langley DAAC web site at: <http://eosweb.larc.nasa.gov>

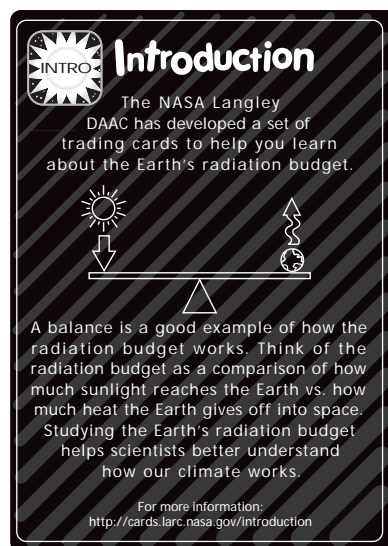
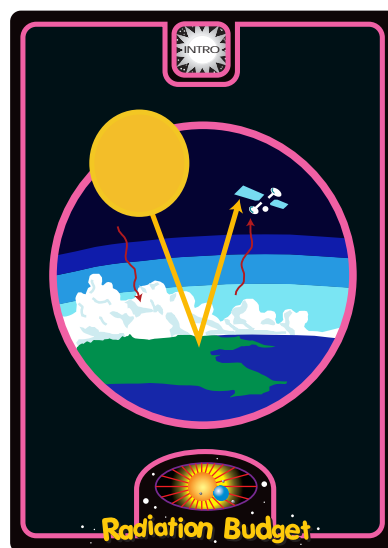
Publication Acknowledgment:

The requested form of acknowledgment for any publication in which Langley DAAC data are used is: *"These data were obtained from the NASA Earth Observing System Data and Information System, Distributed Active Archive Center at the Langley Research Center."* We request two reprints of any published papers or reports which cite the use of our distributed data. And to assist us in providing the best service to the scientific community, we also request notification if the data are transmitted to other researchers.

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All Cards *are* Wild !

The DAAC now has available the first set of six science trading cards, similar to baseball cards, for conference and exhibit handouts. This first set of trading cards uses the Earth Radiation Budget Experiment (ERBE) to help explain the Earth's radiation budget. To assist educators in integrating this science concept into their classrooms, lesson plans and activities have been developed to supplement the content of the trading cards. Additional sets of trading cards for Aerosols, Atmospheric Chemistry, and Clouds are planned.



To view the complete, full-color set of cards, along with the lesson plans, visit the DAAC's educational web page at:

http://eosweb.larc.nasa.gov/education/Erb_Intro.html

In
This
Issue



Our new display booth dressed for exhibiting the ERBE Trading Cards.
See "All Cards are Wild" article on page 3.

Also inside this issue:

- The FIRE ACE Campaign
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- CERES Data Validation Progress
-
- ECS Version 2 Installation
-
- New Data Available at the DAAC
- ...

The Langley DAAC Newsletter is a quarterly publication of the Langley Distributed Active Archive Center, NASA Langley Research Center, Hampton, VA 23681-2199. Contributions, comments, or questions are welcomed and may be submitted to the Langley DAAC User and Data Services office by phone at (757) 864-8656, by FAX at (757) 864-8807, or via e-mail at userserv@eosdis.larc.nasa.gov

The Langley DAAC Newsletter is now available on-line at

<http://eosweb.larc.nasa.gov/HPDOCS/news.html>

You will need a PDF reader such as Adobe Acrobat to open and view the Newsletter

Upcoming Events:

April 21--23
CERES Science Team Meeting
Langley Research Center

June 7--10
Special Libraries Association
89th Annual Conference
Indianapolis, Indiana

June 26--30
American Libraries Association
Annual Conference
Washington, DC

Bulk Rate
Postage Fees Paid
NASA
Permit No. G-27



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